Remarks

I. Status of claims

Claims 1-29 are pending.

Independent claim 21 has been amended.

Claim 23 has been rewritten in independent form in response to the Examiner's indication that such a claim would be allowed. Claims 24-27 incorporate the features of independent claim 23 and therefore also should be allowed.

II. Claim rejections

A. Claims 1-8

Claims 1-4 and 8

The Examiner has rejected claims 1-4 under 35 U.S.C. § 103(a) over Wyman (U.S. 2003/0112347) in view of Tamara (U.S. 2002/0135683) and Butler (U.S. 6,720,968). The Examiner's rejection of these claims, however, should be withdrawn for the following reasons.

1. No permissible combination of the cited references teaches or suggests processing high resolution still images acquired during a burst mode using a still image pipeline that runs concurrently with a video pipeline used to process video frames stored in a memory in a raw format

Claim 1 includes the steps of processing with low priority the video frames stored in the memory in a raw format using a video pipeline, and processing with low priority the high resolution still images acquired during the burst mode using a high resolution still image pipeline, wherein the high resolution still image pipeline runs concurrently with the video pipeline.

a. Wyman

The Examiner has asserted that Wyman's system includes a still image pipeline that runs concurrently with a video pipeline.

Contrary to the Examiner's assertion, however, Wyman's system does not process high resolution still images acquired during a burst mode using a still image pipeline that runs concurrently with a video pipeline that is used to process video frames stored in a raw format. In Wyman's approach, the raw format 3M pixel frames are stored in the BuffH address of the buffer 204 and "then converted to motion video format and written to the motion video media 110" (¶ [0042]). The raw format high-resolution still images that are stored in buffer 204, however, are not processed by a still image pipeline that runs concurrently with a video pipeline that converts the 3M pixel frames into motion video format. Instead, in Wyman's system, the raw format high-resolution still images that are stored in buffer 204 are processed only when they are transferred out of the buffer 204, which occurs only when the camera is place into the VTR standby mode 302 and the save buffer frames function is selected from the VTR standby mode 302 (see ¶ [0053]). That is, the raw format high resolution still images can be processed by a still image pipeline only after the video pipeline has been stopped.

Therefore, contrary to the Examiner's repeated assertions, Wyman's system cannot process with low priority the video frames stored in the memory in a raw format using a video pipeline, and process with low priority the high resolution still images acquired during the burst mode using a high resolution still image pipeline, wherein the high resolution still image pipeline runs concurrently with the video pipeline, as recited in claim 1.

b. Tamara

Tamara does not make-up for Wyman's failure to teach or suggest processing high resolution still images acquired during a burst mode using a still image pipeline that runs concurrently with a video pipeline used to process video frames stored in a memory in a raw format.

In a burst capture mode, the burst compression/decompression engine 108 in Tamara's system writes raw (compressed) CCD data to the SDRAM 160. The stored raw

CCD data is decompressed by the burst compression/decompression engine 108 and then the DSP 122 performs capture processing on the decompressed data (see ¶ [0055]).

In Tamara's system, the stored raw CCD data is NOT processed using a video pipeline, as recited in claim 1. Instead, a preview engine 104 processes the raw CCD data that is streaming out of the CCD controller 102 (see ¶ [0051]). The streaming output from the preview engine 104 is full resolution CCIR 601 NTSC/PAL, which is stored in the SDRAM 160. Thus, the preview engine 104 in Tamara's system is not a video pipeline that processes video frames that are stored along with high resolution still images in raw format in a memory, as recited in claim 1. Consequently, Tamara's system does not include a video pipeline of the type recited in claim 1 that runs concurrently with a still image pipeline.

c. Butler

Butler also does not make-up for Wyman's failure to teach or suggest processing high resolution still images acquired during a burst mode using a still image pipeline that runs concurrently with a video pipeline used to process video frames.

Indeed, Butler describes a video capture board for a computer that is captures video frames that already have been processed by a video pipeline in a video camera (i.e., video source 112). There is nothing in Butler's disclosure that would have led one of ordinary skill in the art to modify Wyman's electronic motion video camera to process high resolution still images acquired during a burst mode using a still image pipeline that runs concurrently with a video pipeline used to process video frames.

d. Conclusion

To summarize, neither Tamara nor Butler makes-up for Wyman's failure to teach or suggest processing with low priority the video frames stored in the memory in a raw format using a video pipeline, and processing with low priority the high resolution still images acquired during the burst mode using a high resolution still image pipeline, wherein the high resolution still image pipeline runs concurrently with the video pipeline. Therefore, no permissible combination of Wyman, Tamara, and Butler possibly could teach or suggest the combination of all of the features recited in claim 1. For at least these reasons, the

Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler should be withdrawn.

2. No permissible combination of the cited references teaches or suggests storing with high priority the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing with low priority the video frames stored in the memory using a video pipeline

Claim 1 includes the steps of storing *with high priority* the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing *with low priority* the video frames stored in the memory using a video pipeline.

a. Wyman

The Examiner has indicated that "Wyman is silent to the priority of capturing and processing of said still images and video frames."

Wyman does not even hint that video frames are stored with a high priority during acquisition of the high resolution still images in burst mode and processed with a low priority using a video pipeline. Indeed, to the contrary, in Wyman's approach the SAME priority levels are applied to the steps of storing high resolution video frames in frame buffer 204 (step 506 in FIG. 5A) and processing the high resolution video frames (step 507 in FIG. 5A). For example, the storing and processing steps 506, 507 are performed together DURING EACH FRAME PROCESSING CYCLE without any indication that the processor 201 performs the storing step 506 with high priority and the processing step 507 with low priority.

Wyman also does not teach or suggest anything that would have led one of ordinary skill in the art at the time of the invention to configure the processor 201 to perform the storing step 506 with high priority and the processing step 507 with low priority.

b. Tamara

Regarding Tamara, the Examiner has argued that (emphasis added):

> ... Tamara et al. hints at said priority by allowing burst mode operation of still image capture. In order to perform burst mode still image capture and process, said images must first by written to buffer before image processing. Because image processing slows down the time between each still image captured, it is necessary that image processing be performed after the still images are read from the buffer. Thus, said burst mode specifically is setting a high priority to capturing and storing (temporarily in a buffer) the image and setting a low priority to image processing via image pipeline (image processing).

The Examiner's argument, however, rests on the assumption that "image processing slows down the time between each still image captured." None of the cited references, however, provides any basis for this assertion. The Examiner is requested to cite art that supports of his unsubstantiated assertions. Alternatively, if the Examiner is aware of facts within his personal knowledge that provide the requisite factual basis and establish the requisite motivation to support his assertions, the Examiner is requested to provide an affidavit in accordance with 37 CFR § 1.104(d)(2).

In Tamara's system the subsystem that stores the raw CCD data operates without conflicting or competing with the operation of the subsystem that processes the raw CCD data into still images. Although the raw CCD data is processed after it is stored, there is no teaching or suggestion in Tamara that would have led one of ordinary skill in the art at the time the invention was made to believe that the storage subsystem operates with a higher priority than the still image processing subsystem. Indeed, without any disclosure of a conflict or resource competition between the operations of the storage subsystem and the still image processing system, one of ordinary skill in the art at the time the invention was made reasonably would have concluded that both the storage subsystem and the still image processing subsystem operate at the same priority level.

Moreover, as explained above, Tamara's system does not include a video pipeline of the type recited in claim 1 that is capable of processing the raw CCD data that is stored in the SDRAM 160. Accordingly, Tamara does not teach or suggest anything about the priority of the processing performed by such a video pipeline relative to the priority with which the raw CCD data is stored.

For the reasons explained above, there is nothing in Tamara's disclosure that would have led one of ordinary skill in the art to modify Wyman's electronic motion video camera

to store *with high priority* the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and process *with low priority* the video frames stored in the memory using a video pipeline.

c. Butler

Regarding Butler, the Examiner has argued that:

> Further, Butler et al. teaches setting a high priority to all write operations (acquiring and stored images) and setting a low priority to all read operations (col. 2, lines 1-59).

As explained above, Butler describes a video capture board for a computer that captures video frames that already have been processed by a video pipeline in a video camera. There is nothing in Butler's disclosure that would have led one of ordinary skill in the art to modify Wyman's motion video camera to store *with high priority* the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and process *with low priority* the video frames stored in the memory using a video pipeline. Indeed, Butler's teaching of prioritizing write, refresh, and read requests to a buffer that stores already-processed digital video data generated by a digital video camera has nothing to do with prioritizing the storing of raw format video frames and high resolution still images in a memory and the processing of video frames stored in the memory using a video pipeline in Wyman's motion video camera.

In addition, in Wyman's approach, the raw format 3M pixel frames are stored in the BuffH address of the buffer 204 and "then converted to motion video format and written to the motion video media 110" (¶ [0042]). The processes of storing the raw format 3M pixel frames and processing the stored frames are at the same priority level such that the video processing pipeline processes each new raw format 3M pixel frame that is stored in the BuffH address. Contrary to the Examiner's assertion, one of ordinary skill in the art at the time the invention was made would not have been motivated to process the raw format 3M pixel frames at a lower priority than the priority with which the raw format 3M pixel frames are stored because, in Wyman's approach, the video processing pipeline necessarily would fall behind and eventually the buffer 204 would become full of unprocessed raw format 3M pixel frames, after which point unprocessed raw format 3M pixel frames would be overwritten and lost.

Thus, a reconfiguration of Wyman's system in accordance with the Examiner's proposal would lead to the undesirable result in the loss of video frames that otherwise would be retained if the Examiner's proposed modification were not implemented. Moreover, there is not any apparent benefit that could be gained from such a modification, at least not a benefit that could have been gleaned from Wyman's disclosure by one of ordinary skill in the art at the time the invention was made.

d. Conclusion

To summarize, neither Tamara nor Butler makes-up for Wyman's failure to teach or suggest storing *with high priority* the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode, and processing *with low priority* the video frames stored in the memory using a video pipeline. Therefore, no permissible combination of Wyman, Tamara, and Butler possibly could teach or suggest the combination of all of the features recited in claim 1. For at least these additional reasons, the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler should be withdrawn.

3. Conclusion

For at least the reasons explained above, the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler should be withdrawn.

Claims 2-4 and 8 incorporate the features of independent claim 1 and therefore are patentable for at least the same reasons.

Dependent claim 5

Claim 5 incorporates the features of independent claim 1.

The Examiner has rejected claim 5 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Matsumoto (U.S. 2003/0052986). Matsumoto, however, does not make up for the failure of Wyman and Tamara, Butler, to teach or suggest the features of

independent claim 1 discussed above. Therefore, claim 5 is patentable over Wyman in view of Tamara, Butler, and Matsumoto for at least the same reasons explained above in connection with claim 1.

Dependent claims 6-7

Each of claims 6-7 incorporates the features of independent claim 1.

The Examiner has rejected claims 6-8 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Bittner (U.S. 6,330,400). In particular, the Examiner has cited Bittner merely for his disclosure of an ASIC "structured to perform the desired image processing functions including, but not limited to: 1. Demosaic; 2. Color correction, compensation and other image quality; ... 7. Image compression."

Bittner, however, does not make up for the failure of Wyman, Tamara, and Butler to teach or suggest the features of independent claim 1 discussed above. Accordingly, the Examiner's rejection of claims 6-8 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Bittner should be withdrawn for at least the same reasons explained above in connection with claim 1.

B. Claims 9-16

Claims 9, 10, and 12-14

Claim 9 is an independent claim and claims 10, and 12-14 depend from independent claim 9.

The Examiner has rejected claims 9, 10, and 12-14 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler.

Claim 9 recites a joint video and still image pipeline that includes a sensor controller capable of storing with *high priority* the video frames and high resolution still images acquired during the burst mode in raw format into a memory, and one or more processors capable of concurrently processing with *low priority* the video frames and the high resolution still images acquired during the burst mode, wherein the video frames are processed using a video pipeline, and the high resolution still images are processed using a high resolution still

image pipeline, and wherein the video pipeline runs concurrently with the high resolution still image pipeline

Independent claim 9 is patentable over Wyman, Tamara, and Butler for at least the same reasons explained above in connection with claim 1. Therefore, the Examiner's rejection of independent claim 9 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, should be withdrawn.

Claims 10 and 12-14 incorporate the features of independent claim 9 and therefore are patentable for at least the same reasons explained above.

Dependent claim 11

Claim 11 incorporates the features of independent claim 9.

The Examiner has rejected claim 11 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Matsumoto.

The Examiner has cited Matsumoto merely for his disclosure of:

> The still image codec unit includes a JPEG encoder for generating JPEG still image data by executing a JPEG compression process for still image data obtained by the camera unit and image processing unit ...
>
> The moving image codec unit includes an MPEG encoder for generating MPEG moving image data by executing an MPEG compression process for moving image data obtained by the camera unit and image processing unit ...

Matsumoto, however, does not make up for the failure of Wyman, Tamara, and Butler, to teach or suggest the features of claim 9 corresponding to the features of independent claim 1 discussed above. Therefore, claim 11 is patentable over Wyman in view of Tamara, Butler, and Matsumoto for at least the same reasons explained above in connection with claim 9.

Dependent claims 15 and 16

Each of claims 15 and 16 incorporates the features of independent claim 9.

The Examiner has rejected claims 15 and 16 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Bittner. The Examiner has cited Bittner merely for his

disclosure of an ASIC "structured to perform the desired image processing functions including, but not limited to: 1. Demosaic; 2. Color correction, compensation and other image quality; ... 7. Image compression."

Bittner, however, does not make up for the failure of Wyman, Tamara and Butler to teach or suggest the features of claim 9 corresponding to the features of independent claim 1 discussed above. Accordingly, the Examiner's rejection of claims 15 and 16 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Bittner should be withdrawn for at least the same reasons explained above in connection with claim 9.

C. Claims 17-20

Claims 17-19

The Examiner has rejected claims 17-19 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler.

Claim 17 includes instructions for: storing with high priority the video frames and the high resolution still images in raw format in a memory during acquisition of the high resolution still images in burst mode; processing with low priority the video frames stored in the memory using a video pipeline; and processing with low priority the high resolution still images acquired during the burst mode using a high resolution still image pipeline, wherein the high resolution still image pipeline runs concurrently with the video pipeline.

Independent claim 17 is patentable over Wyman, Tamara, and Butler for at least the same reasons explained above in connection with claim 1. For at least these reasons, the Examiner's rejection of independent claim 17 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, should be withdrawn.

Dependent claims 18 and 19 incorporate the features of independent claim 17 and therefore are patentable over Wyman, Tamara, and Butler, for at least the same reasons.

Dependent claim 20

Claim 20 incorporates the features of independent claim 17.

The Examiner has rejected claim 20 under 35 U.S.C. § 103(a) over Wyman in view of Tamara, Butler, and Matsumoto.

The Examiner has cited Matsumoto merely for his disclosure of:

> The still image codec unit includes a JPEG encoder for generating JPEG still image data by executing a JPEG compression process for still image data obtained by the camera unit and image processing unit ...
>
> The moving image codec unit includes an MPEG encoder for generating MPEG moving image data by executing an MPEG compression process for moving image data obtained by the camera unit and image processing unit ...

Matsumoto, however, does not make up for the failure of Wyman and Tamara, Butler, to teach or suggest the features of claim 17 corresponding to the features of independent claim 1 discussed above. Therefore, claim 20 is patentable over Wyman in view of Tamara, Butler, and Matsumoto for at least the same reasons explained above in connection with claim 17.

D. Claims 21, 22, 28, and 29

Claim 21 is an independent claim and claims 22, 28, and 29 depend from independent claim 21.

Claim 21 has been amended and now recites "combining image frames processed by the video pipeline in the non-burst-mode of operation with video image frames stored in the burst mode of operation and processed by the video pipeline to generate a continuous compressed video sequence." None of the cited references teaches or suggests such a feature. Therefore, no permissible combination of the cited references possibly could teach or suggest such a feature.

For at least these reasons, the Examiner's rejection of independent claim 21 under 35 U.S.C. § 103(a) over Wyman in view of Tamara and Butler now should be withdrawn.

Dependent claims 22, 28, and 29 incorporate the features of independent claim 21 and therefore are patentable over Wyman, Tamara and Butler, for at least the same reasons.

III. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,

Date: Feb. 1, 2005

Edouard Garcia
Reg. No. 38,461
Telephone No.: (650) 631-6591

Please direct all correspondence to:

Hewlett-Packard Company
Intellectual Property Administration
Legal Department, M/S 35
P.O. Box 272400
Fort Collins, CO 80528-9599